Social Integration of Students with Autism
in Inclusive Settings

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Abstract: Students with autism are increasingly being placed in general education “inclusion” settings for the purpose of improved social integration. This article presents information on the social integration of ten students with autism in elementary inclusive settings. The purposes were to describe three social integration constructs of students with autism in inclusive classrooms, including their acceptance (social preference), visibility (social impact), and membership in a peer group (social network affiliation) and to identify the extent to which severity of autism characteristics contributed to these social integration constructs. Results suggest students with autism in inclusive settings are as accepted, visible, and members of peer groups, as well as both their peers without disabilities and those with other disabilities. Post hoc observations revealed further factors that may impact these constructs as well.

Historically, literature on social status of children suggests that students prefer peers with whom they have something in common, who are more like themselves, have good social and communication skills, who are leaders academically or athletically, and who do not exhibit extreme behaviors (Adler, Kless, & Adler, 1992). Children with low incidence disabilities such as autism, which by its very definition involves limited social and communication skills as well as unusual stereotypical behaviors, therefore, would be assumed to have lower status and fewer friendships. Having important, reciprocal relationships with peers is key to a child’s social, emotional, and even cognitive development (Scheuermann & Webber, 2002). Children with autism spectrum disorders, by the very nature of their disorder, often lack these basic skills (American Psychiatric Association, 1994). Increasingly, parents and professionals are looking to inclusive settings to provide social interactions and opportunities for children with autism that might otherwise be lacking in a self-contained setting.

Successful social integration in the general education classroom means being visible to other students (social impact), being someone with whom the other students wish to spend time (social preference), and being a member of a group of friends that spend time together (social network affiliation). Placement and programming decisions for students with autism can be a difficult task. Often the academic abilities of these students fall behind that of their general education peers, causing inclusive placements to focus more on social integration benefits than on academic ones. A student’s social integration abilities are often considered significant to placement and programming decisions. Compared to typical students, students with autism often have significant social skills deficits that may interfere with their acceptance by others. In addition, students with autism vary greatly in terms of severity of autism characteristics that may prohibit successful social interactions (Mesibov & Shae, 1996). When deciding to place a student with autism into inclusive classrooms for the purpose of social integration, one must consider the characteristics of the disability as possible obstacles to success. According to the Diagnostic and Statistical Manual (4th Edition) of the American Psychiatric Association (DSM-IV; 1994), primary characteristics of autism fall into three categories: communication deficits or delays, stereotypic behaviors, and limited social relatedness. Sam-

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ple characteristics of communication deficits include echolalic speech and a delay or failure to develop speech. Stereotypic behavior is characterized by insistence on sameness, pre-occupation with certain objects or parts of objects, resistance to change, perseverative movements such as rocking or hand flicking, and self-injurious behaviors such as head-banging. Lack of eye contact and lack of social and emotional reciprocity are examples of social relatedness deficits. Each characteristic symptom of autism on its own may not directly influence the social integration of a student with autism in general education setting; however, severity of the characteristics could contribute to social integration success. Due to significant variation among severity and types of autism characteristics, the current study examined the degree to which severity of each of the three major diagnostic categories for autism influenced social preference, social impact and social network affiliation of students with autism in inclusive classrooms. Specifically, severity of each of the three major diagnostic areas described in the DSM-IV: communication, social relatedness, and stereotyped behaviors (American Psychiatric Association) were examined.

Social Preference

Social preference refers to the level of social acceptance a student has relative to other members of the classroom (Farmer & Farmer, 1996). In studies of students without disabilities, Adler et al. (1992) found that students tend to prefer others who are (a) more like themselves in terms of academic or athletic ability; (b) more popular; (c) attractive; (d) congenial; (e) compliant with rules; (f) leaders; (g) from families with higher socioeconomic status; and (h) good athletes or have good grades. Less popular students are typically shy, exhibit behavior problems, are non-compliant, are less attractive or are perceived as “teachers’ pets” (Adler et al.). Differences exist between males and females, as well, including that males with high academic ability or low athletic ability are less popular, while females with high academic ability are more popular (Adler et al.).

Studies on social preference of students with mild disabilities in inclusive classrooms have found overwhelmingly that students with disabilities have lower preference than their typical peers (Coben & Zigmond, 1986; Gottlieb, Gottlieb, Berkel, & Levy, 1986; Sabornie, Kauffman, Ellis, Marshall, & Elksnin, 1987-1988; Stiliadis & Wiener, 1989). For example, Sabornie, Marshall, and Ellis (1990) found that students with learning disabilities differed significantly in social preference from their peers without disabilities. Thus, students with mild disabilities were not selected as preferred classmates. Similarly, Sabornie and Kauffman (1985) found that high school students with behavior disorders had significantly lower social preference than their peers without disabilities did. One exception to this finding was a study by Farmer and Farmer (1996) that found students with LD and BD to be well integrated into their inclusive classrooms. Relatively fewer studies have been done that look at more severe or lower incidence disabilities, although most noted lower preference for students with disabilities than those without (Bender, Wyne, Struck, & Bailey, 1984; Sabornie & Kauffman, 1987). One exception was a study by Piercy, Wilton, and Townsend (2002), which concluded that cooperative learning techniques improved social acceptance of children with low incidence, severe disabilities.

Social Impact

Social impact refers to amount of visibility a student has in a classroom, that is, how well a student is known by his or her peers (Farmer & Farmer, 1996). Students who score low in the area of preference are often perceived as “outcasts,” are “invisible,” or that no one knows their names. However, Farmer and Farmer found that students who may not be well accepted by their peers (low social preference), in fact, may be well known (high social impact). Most often the student who exhibits extreme behaviors and noncompliance will have low preference combined with high social impact. However, typically students with low preference scores also receive low impact scores (Farmer & Farmer).

Social Networks

Having very low social preference or impact scores, however, does not mean that a given student is without a peer group. Families iden-
tify having friendships as a priority for their children with low incidence disabilities (Hamre-Nietupski, Nietupski, & Strathe, 1992). In addition, students in inclusion classrooms report that they are willing to form friendships with students with disabilities who are in their class (Hendrickson, Shokoohi-Yekta, Hamre-Nietupski, & Gable, 1996). Thus, development of friendships is of valid concern for IEP committees when the committee is determining placement in inclusion for a child with a low incidence disability such as autism. The term, social network, refers to the peer group to which a particular student belongs (Farmer & Farmer, 1996). Additionally, social networks describe who associates with whom and who is perceived to belong to a particular peer group (Farmer & Farmer). Findings from studies of social networks of students have found that even students with low social preference or impact had a group of friends with whom they associated (Farmer, 1994; Pearl et al., 1998). Social network affiliation among students does not seem to be related to disability, but rather to characteristics of each student as well as the classroom as a whole. For example, Farmer and Farmer found that students with learning disabilities tended to form groups together, as did students with behavior disorders. Moreover, students with giftedness tended to form peer groups with others who were gifted, but only if they were the same gender (Farmer & Farmer). Few studies have looked at social networks of students with disabilities, yet those that have find these students do have significant relationships with peers in general education classrooms (Farmer & Farmer; Hall & McGregor, 2000; Pearl et al.). These studies suggest that students who may not be well accepted by many peers may still be members of social networks. Successful social integration of students with disabilities into inclusive classrooms implies acceptance (i.e., social preference), visibility (social impact), and membership in a peer group within the larger classroom (social network affiliation).

To help students with autism become more socially integrated in general education settings, families and teachers must have an understanding of the social preference, social impact, and social network affiliation of these students. Families and teachers making placement decisions must have a better understanding of the characteristics that contribute to social preference, social impact, and affiliation in a peer network, in order to identify the best placement for a given student with autism. Teachers also need to be able to teach skills or remediate behaviors that may negatively impact on a student’s social preference, impact or affiliation with a social network. To that end, the purpose of this study was twofold. First, to determine if students with autism differ from their peers without disabilities in terms of social preference, social impact, or social network affiliation. Second, to determine if there were differences between severity of autistic characteristics (communication, stereotypic behaviors, and social relatedness) and social preference, social impact, or social network affiliation.

Method

Participants and Settings

Participants were 177 students from nine classrooms in grades two through five. Of this sample, 141 were students without any identified disabilities and 26 were labeled with a disability other than autism, such as LD, BD, or ADHD. Ten were students with autism or Pervasive Developmental Disorders-Not Otherwise Specified who had been identified as such by their pediatrician, neurologist, or a licensed psychologist and were receiving special education services under the autism category. One student was in grade two, and three each were in grades three, four, and five. Two students were in the same third grade classroom, classroom C. Students with autism ranged in age from seven years, seven months to eleven years, two months. All were white males, who spoke English as their native language. The students with autism were all receiving educational services in a general education classroom for 50% or more of the school day for at least one academic subject area and attended a public elementary school in central Texas. Student demographic information can be found in Table 1.

Procedure

Prior to data collection, teachers were asked to provide demographic information including each student’s full name, including any
nicknames, gender, race, and any identified disability. Each class was given a letter code (A-I), and each student within each classroom was given a corresponding number code (example: A1, A2, and so on). Photocopied worksheets were used to collect data for social preference/social impact and social network affiliation. Worksheets used for social preference and impact consisted of six questions about whom the students would most and least like to eat lunch, invite to a birthday party, and work on a class project. Students were given “shields” (blue pocket folders) to use to conceal their worksheets from others. The researcher read each question to the students; students with autism were provided assistance to write their answers by the instructional assistant (if one was assigned to the student) or by the teacher, if necessary. Because students were asked to write in names of their classmates on the worksheets, a transparency with the names of each class member was made available from which students could copy. This transparency was read aloud before students were to write anything on their worksheets. Every effort was made to secure the identity of those whom each student listed on their worksheet, including asking the students to keep their responses to themselves even after the researcher left and allowing the students to ask only the researcher for help during data collection.

### Measures

The peer nomination procedure described in the *Behavior Rating Profile* (BRP) (Brown & Hammill, 1990) was used to determine social preference and social impact for all students, including those with autism. The BRP sociogram is a ranking procedure in which students nominate three classmates with whom they would most like to do something, and three classmates with whom they would least like to do something. Although examples of questions are given in the test manual, the researcher is encouraged to develop his or her own questions relative to the research question under investigation (Brown & Hammill).

To determine social network affiliation, students were each given a piece of typing paper with five circles labeled Groups A through E on it. The researcher asked this question of all students: “Are there some kids in this room who hang around together a lot?” The researcher clarified this question by asking: “For example, are there some students who seem to always eat together, play together at recess, or work together when given a choice of work partners?” Students were told to list as many groups of students, up to five, as they could think of, and to list the name of each person in a given group within the provided circles. Students were asked to assign each person to only one group; if a person in the room seemed to hang out with more than one

### TABLE 1

Demographic Information, Students with Autism

<table>
<thead>
<tr>
<th>Student</th>
<th>Grade</th>
<th>Age</th>
<th>I.Q. Score/Test</th>
<th>Amount of Time in General Education</th>
<th>Support in General Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>3,5</td>
<td>95/TONI *</td>
<td>5 hours</td>
<td>One-to-one Paraprofessional</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>2</td>
<td>Unable to Test</td>
<td>7 hours</td>
<td>One-to-one Paraprofessional</td>
</tr>
<tr>
<td>C</td>
<td>5</td>
<td>4</td>
<td>86/KABC *</td>
<td>7 hours</td>
<td>None</td>
</tr>
<tr>
<td>D</td>
<td>5</td>
<td>3</td>
<td>93/KABC</td>
<td>6.5 hours, pull out as needed</td>
<td>None</td>
</tr>
<tr>
<td>E</td>
<td>4</td>
<td>2</td>
<td>61/KABC</td>
<td>6 hours</td>
<td>Paraprofessional in class as needed</td>
</tr>
<tr>
<td>F</td>
<td>4</td>
<td>3</td>
<td>79/KABC</td>
<td>6.5 hours</td>
<td>None</td>
</tr>
<tr>
<td>G</td>
<td>3</td>
<td>Unknown</td>
<td>Unknown</td>
<td>7 hours, pull out as needed</td>
<td>One-to-one Paraprofessional</td>
</tr>
<tr>
<td>H</td>
<td>3</td>
<td>5</td>
<td>79/WISC-III *</td>
<td>7 hours</td>
<td>Paraprofessional in class as needed</td>
</tr>
<tr>
<td>I</td>
<td>3</td>
<td>4</td>
<td>91/KABC</td>
<td>7 hours</td>
<td>Paraprofessional in class as needed</td>
</tr>
<tr>
<td>J</td>
<td>5</td>
<td>7</td>
<td>108/KABC</td>
<td>7 hours</td>
<td>None</td>
</tr>
</tbody>
</table>

he or she was to be placed in the group with which he or she spent the most time. Students were told that they should only name as many groups as they could think of, and that it was okay to only have one or two. In addition, students were told that they should name all members of each group, but that they did not have to use the names of all people in their class. Students were told that if there were some people that did not seem to belong to any particular group, they should place those names outside the circles. Finally, students were asked to include themselves in the group with which they associated most of the time. Students were asked to list their group first and to denote themselves with the word “me.”

The Gilliam Autism Rating Scale (GARS; Gilliam, 1995) was used to determine a severity of autism characteristics quotient of each student with autism in each of the three main characteristic categories: communication, social relatedness, and stereotypic behavior. Quotients were dichotomized as either mild to moderate or moderate to severe.

Data Analyses

To determine social preference, the following steps were taken: (1) students nominated peers within the classroom whom they would most and least like to play with at recess, invite to a birthday party, and work with on a class assignment; (2) total positive nominations and total negative nominations for each student in the class were determined; (3) negative scores were subtracted from positives to determine each student’s overall social preference score; (4) scores were rank-ordered from highest to lowest; (5) data were dichotomized, based on a median score derived from the ranking; and (6) students listed above the median score were considered to have high social preference, while those below the median were considered to have low preference.

To determine social impact, the following steps were taken: (1) students nominated peers with whom they would most and least like to do three activities; (2) instead of subtracting the negative nominations from the positive nominations, the two were added to determine total number of times a student was nominated, regardless of whether the nominations were positive or negative; (3) students were then placed into rank order from most to least number of times nominated; (4) data were dichotomized, based on a median score derived from the ranking; and (5) again, those whose score fell above the median were considered to have high social preference, while those with a score below the median were considered to have low preference.

Social network affiliation was determined using a procedure described by Farmer and Farmer (1996), and involved the following steps: (1) students were asked to list students within the class who “hang around together a lot”; (2) from these lists, the number of times students were named to any group was determined using a social network recall matrix; (3) the number of times students were named together to a group was determined using a social network co-occurrence matrix; (4) using a social network correlation matrix, students who were named together as a group 50% or more of the number of times they were named to any group were determined to belong to a group together; and (5) students were then dichotomized as affiliated or not affiliated. Tables 2 and 3 present the preference, impact, and affiliation data by GARS scores and by participant disability, respectively.

A 2 × 2 contingency design was used. Independent variables were type of disability (autism or no disability) and severity of autism characteristics. Dependent variables included social preference, social impact, and social network affiliation. Fisher’s Exact Test was used as an alternative to the Pearson Chi Square procedure, because all of the assumptions of Chi Square could not be made. Significance was set at the .05 level.

Results

Results indicated no differences between students with autism and students without disabilities on the social integrations constructs: social preference, social impact, or social network affiliation. Fisher’s Exact Test = .7512, p > .05; .5281, p > .05; .3856, p > .05, respectively. Similarly, results were no significant difference between autism characteristics for students with autism and the social integration constructs: social preference (Fisher’s Exact Test = 1.0, p > .05; 1.0, p > .05; 1.0, p > .05), social impact (Fisher’s Exact Test = 1.0,
Studies have suggested that student social preference, impact, and network affiliation differ according to disability type (Bender et al., 1984). Therefore, a Fisher’s Exact Test was run post hoc to determine if there was a difference between students with autism and students with other disabilities (i.e., LD, BD, and ADHD) on each of the social integration constructs. No differences were found, suggesting that the type of disability did not impact on the social integration constructs: social preference (Fisher’s Exact Test $= .0598$, $p > .05$), social impact (Fisher’s Exact Test $= .4593$, $p > .05$), and social network affiliation (Fisher’s Exact Test $= .5142$, $p > .05$).

### Discussion

The purpose of this study was two-fold. First, to identify whether students with autism differed from their peers without disabilities on three social integration constructs. Second, to determine if there were differences between severity of autistic characteristics and social preference, social impact, or social network affiliation of the students with autism. Additionally, an analysis was conducted to determine whether there was a difference between students with autism and their peers with

### TABLE 2

Levels of Social Preference, Impact, and Network Affiliation for Students with Autism by GARS Scores

<table>
<thead>
<tr>
<th></th>
<th>Average-High Preference</th>
<th>Average-High Impact</th>
<th>Low-Average Preference</th>
<th>Low-Average Impact</th>
<th>Affiliated with a Network</th>
<th>Not Affiliated with a Network</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild-Moderate GARS Communication Scores</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Moderate-Severe GARS Communication Scores</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Mild-Moderate GARS Behavior Scores</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>7</td>
<td>2</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Moderate-Severe GARS Behavior Scores</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Mild-Moderate GARS Social Scores</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Moderate-Severe GARS Social Scores</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### TABLE 3

Levels of Social Preference, Impact and Network Affiliation for Participants

<table>
<thead>
<tr>
<th></th>
<th>Average-High Preference</th>
<th>Average-High Impact</th>
<th>Low-Average Preference</th>
<th>Low-Average Impact</th>
<th>Affiliated with a Network</th>
<th>Not Affiliated with a Network</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students with Autism</td>
<td>50%</td>
<td>60%</td>
<td>50%</td>
<td>40%</td>
<td>70%</td>
<td>30%</td>
<td>10</td>
</tr>
<tr>
<td>Students with Other Disabilities</td>
<td>69%</td>
<td>38%</td>
<td>31%</td>
<td>62%</td>
<td>81%</td>
<td>19%</td>
<td>26</td>
</tr>
<tr>
<td>Students without Disabilities</td>
<td>44%</td>
<td>48%</td>
<td>56%</td>
<td>52%</td>
<td>83%</td>
<td>17%</td>
<td>141</td>
</tr>
</tbody>
</table>
other disabilities on each of the three social integration constructs.

The social integration constructs examined in this study were: social preference (acceptance or popularity), social impact (visibility), and social network affiliation (membership in a peer group). Scores of students with autism on each of these three constructs were analyzed in terms of differences from students without disabilities in the classes.

Social Preference

It appears that students with autism in inclusive classrooms are as likely as their peers to be chosen for an activity such as playing at recess, attending a birthday party, or working on a class project. Although this is contrary to a large body of research suggesting that students with disabilities are more likely to have low social preference scores than their peers without disabilities (Sabornie et al., 1990; Sabornie & Kauffman, 1985, 1987; Sabornie et al., 1987-1988; Stone & La Greca, 1990), interpretations must be made with caution. The small and relatively uniform sample size makes generalization of findings to students of differing age, gender, region, or race limited. However, findings do suggest that future research is needed to further determine the nature of social preference for children with autism in inclusion settings.

Social Impact

In terms of social impact, students with autism were neither more nor less visible than their peers without disabilities. This may suggest that students with autism in inclusive classrooms have the same amount of visibility as their peers without disabilities. These findings are similar to those of previous researchers (Farmer, 1994; Farmer & Farmer, 1996).

Social Network Affiliation

No differences were found between students with autism and students without disabilities in terms of social network affiliation. That is, students with autism were considered to be members of a very definite group, as often as students without disabilities. This information supports the prevailing belief among some advocates of full inclusion that inclusion will assist students with disabilities in having a circle of friends (Stainback & Stainback, 1992). It should again be noted that the limited sample size in this study requires interpretation and generalization with caution. However, results were not as expected, as previous studies on social network affiliation seemed to indicate that the likelihood of social networks for these students was limited. Thus, further studies are needed to gather more information on the accuracy of this phenomenon.

The second purpose of the study was to identify whether severity of autism characteristics (communication, stereotypic behavior, and social relatedness) impacted social preference, social impact, or social network affiliation of these students. None of the autism symptoms had an effect on the social integration constructs. Based on these findings, it appears that no particular symptom of autism outweighs the other with regard to influence on social preference, social impact, or social network affiliation. This is surprising in light of previous work suggesting that inappropriate or odd behaviors and limited social skills negatively impact social integration (Asher & Coie, 1990).

Post Hoc Statistics

Previous studies have found differences between disability type on social preference and social impact (Bender et al., 1984; Sabornie & Kauffman, 1985, 1986, 1987; Sabornie et al., 1987-88), an area at first not examined in the current study. However, no significant differences between groups were found, suggesting that all students, regardless of disability or disability type, were as well accepted (social preference), as visible (social impact), and as likely to be a member of a peer group (social network affiliation). This is in contrast to the previous studies, and warrants further study.

Observational Findings

In addition to running statistics post hoc for enriching findings, the researcher made some interesting observations from the raw data. First, from a descriptive standpoint regarding social preference and impact, students with autism received positive votes by their peers when it came to playing at recess or being invited to a birthday party. Examination of the
responses given by students in the nine classrooms showed, however, few of the positive votes given to the student with autism were for working on a class project. Students appeared to prefer their peer with autism as a playmate rather than as a partner on work related tasks. Future researchers may wish to examine this variable specifically to determine if this is in fact a typical response of the general education peers to their classmate with autism.

Second, in one of the classrooms, the student with autism was elected as fourth grade “class president.” Not surprisingly, this student also had high social preference and social impact scores. What is interesting, however, is that this student with autism was not a part of a particular social network. In previous studies, students who had high social preference (particularly students who were considered to be among the most popular among their peers) tended to be affiliated with a very distinct social group, including other “popular” students (Farmer & Farmer, 1996). An interesting, and possibly contributing factor to this student’s high preference and visibility, was that other students from his classroom had participated in a training session early in the school year regarding autism, its characteristics, and ways to accommodate the student with autism in their class. This training was done prior to the student with autism joining the class, and without him present. It was led by an outside consultant in autism. Other researchers have noted that peer training can help support social acceptance of a student with autism in an inclusive setting, and this finding supports this (Garrison-Harrell, Kamps, & Kravits, 1997).

Another group of students had participated in a similar training session early in the school year, led by the mother of the student with autism. In this classroom, the student with autism was prone to more aggressive acts and to tantrums that required his frequent removal from class. These are behaviors that might typically lead to low social preference (popularity), but high social impact (visibility). Despite this, the student had high social preference as well as high social impact scores. This leads to the possibility that the training that students underwent early in the year may have impacted their perceptions of their peer with autism in class, perhaps making them more accepting of this individual and his problem behaviors. It is unclear whether having his mother lead the training had an impact.

Another interesting observation is that in one classroom, the student with autism and his instructional assistant were named in a group together by one of the members of the class. This leads to an interesting question: how do the other students in the classroom where a full time instructional assistant is present view the student with disabilities? The student in this classroom apparently viewed the student with autism and his instructional assistant as a “group,” by the standards set by the researcher (people in this class who “hang around together a lot”). It should be noted that this child with autism was not found to be part of a social network, nor did he have high social preference scores. How much having a one-on-one assistant affected these results cannot be answered, but future research may provide information.

Finally, in the classroom in which two students with autism were both placed, these two students were named to a group together by all other members of the class; no one else was ever named to their group. In another classroom the student with autism was named to a group containing only those students in the classroom with other disabilities who were not isolates. This is consistent with findings by Farmer and Farmer (1996) and Shrum, Cheek, and Hunter (1988), where students with similar traits tended to spend most of their time together, as well as with findings of Diserio and Serafica (1986) that students with disabilities in inclusive classrooms tended to interact with each other more often than with peers without disabilities. It is again unclear whether or not these students were perceived as being a group solely on the basis of their disabilities or because they actually did spend a great deal of time together. Further studies that include classroom observations may yield more information.

Limitations and Recommendations for Future Research

Researchers who are interested in the social integration of students with autism in general education settings are at once cautioned in generalizing these results and encouraged to pursue further study into the possible social
integration benefits of inclusion for students with autism. Several issues are raised in this study, which may guide future researchers in this area. One limitation of this study is the small sample size and limited variation among the students with autism who participated in the study. Future studies involving a larger number of students with autism might yield more statistically significant results. Also, students with autism from an ethnic group other than Anglo as well as who are female need to be included in future studies in order for findings to be more generalizable.

Future researchers would be wise also to consider several other potential factors that may contribute to social integration. This study examined the severity of autism characteristics. However, particularly because these did not produce a significant difference, other factors may contribute to social integration and need to be examined. For example, a variety of studies have found that specific training of certain peers within a class can aid in the social integration of a student with autism (Brady, Shores, McEvoy, Ellis, & Fox, 1987; Mundeschken & Sasso, 1995), and often leads to greater acceptance of this student by the trained peers (Garrison-Harrell et al., 1997). Future research should investigate the role peer training plays in the acceptance of students with disabilities in inclusive classrooms. Also, the role that paraeducators play in inclusive classrooms has been subject of recent research. One study found that proximity of the paraeducator to the student with the disability can contribute to separation from classmates, dependence on adults, loss of gender identity, and can create a social barrier against peer interactions (Giangreco, Luiselli, & MacFarland, 1997). In a similar study, researchers found that instructional assistants considered themselves primarily responsible for so much of the education of the student with a disability that it necessitated their being in constant close proximity to the student (Marks, Schrader, & Levine, 1999). These studies highlight the need for future investigations examining the role of paraeducators, and the possible factor of proximity, in acceptance of students with disabilities in inclusive classrooms. Also, such factors as amount of time in inclusion, philosophy and training of teachers, and demographic information such as gender, race and age may contribute to social integration of students with autism in inclusive settings and should be targeted in future studies. Finally, future researchers should investigate students with more varied and severe autism characteristics.

Further research is needed to both dispel the myth that students with low incidence disabilities cannot be successfully integrated socially into an inclusion classroom and to identify those factors that will make their integration more successful.

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Garrison-Harrell, L., Kamps, D. M., & Kravits, T.

22 / Education and Training in Developmental Disabilities-March 2005


Received: 7 August 2003
Initial Acceptance: 2 October 2003
Final Acceptance: 18 February 2004